

WHAT IS CLAIMED IS:

1. A cone crusher comprising:

a stationary concave liner;

a mounting base as a movable element which is capable of approaching the inner periphery of said concave liner and separating therefrom; and

a mantle liner fixed to said mounting base,

wherein a crush material is crushed in a crushing chamber formed between said concave liner and said mantle liner,

wherein said concave liner comprises:

a first area surface having a length of T to $\sqrt{2}T$, said first area surface facing said crushing chamber to form a first area and T is a predetermined value;

a second area surface extending inclining outward, said second area surface facing said crushing chamber to form a second area; and

a third area surface extending inclining further outward, said third area surface facing said crushing chamber to form a third area,

whereby said first to third area surfaces are sequentially arranged from the inlet of said crushing chamber,

and wherein said mantle liner comprises:

a first tapered surface having a length of a perpendicular from said first area surface at the end on the inlet side thereto being greater than T , a cross angle of less than 20° with respect to said first area surface, and an inclination angle of greater than 60° ;

a second tapered surface having a length of a perpendicular from said second area surface at the end on the inlet side being greater than $0.5T$ and a cross angle of 5° to 10° with respect to said second area surface; and

a third tapered surface having an inclination angle of 45° to 50° ;

whereby said first to third tapered surfaces are sequentially arranged

from the inlet of said crushing chamber.

2. The cone crusher according to Claim 1, wherein said third tapered surface has a cross angle of 2° to 3° with respect to said third area surface.

3. The cone crusher according to Claim 1, wherein said second area surface has a length of T to $\sqrt{2}T$ and said third area surface has a length of $T/\sqrt{2}$ to T .

4. The cone crusher according to Claim 1, wherein said first tapered surface has a length of $T/\sqrt{2}$ to T .

5. The cone crusher according to Claim 1, wherein said second tapered surface has a length of $\sqrt{2}T$ to $2.4T$.

6. The cone crusher according to Claim 1, wherein said third tapered surface has a length of T to $\sqrt{2}T$.

7. The cone crusher according to Claim 1, wherein the curvature radius between said first area surface and said second area surface is $1.4T$ to $1.7T$.

8. The cone crusher according to Claim 1, wherein the curvature radius between said second area surface and said third area surface is $6.4T$ to $9.7T$.

9. The cone crusher according to Claim 1, wherein the curvature radius between said first tapered surface and said second tapered surface is $1.7T$ to $2.0T$.

10. The cone crusher according to Claim 1, wherein the curvature radius between said second tapered surface and said third tapered surface is $13T$ to

16.3T.

11. A cone crusher comprising:

a stationary concave liner;

a mounting base as a movable element which is capable of approaching the inner periphery of said concave liner and separating therefrom; and

a mantle liner fixed to said mounting base,

wherein a crush material is crushed in a crushing chamber formed between said concave liner and said mantle liner,

wherein said crushing chamber comprises:

a first area, wherein the crushing surface of said mantle liner at the inlet for the crush material is 70° to 75° to the horizontal plane and the angle between the crushing surface of said concave liner and the crushing surface of said mantle liner at the inlet is 15° to 20° ;

a second area, wherein the crushing surface of said mantle liner at a middle part between the inlet and the outlet for the crush material is 52° to 57° to the horizontal plane and the angle between the crushing surface of said concave liner and the crushing surface of said mantle liner at the middle part is 5° to 10° ; and

a third area, wherein the crushing surface of said mantle liner at the outlet for the crush material is 45° to 50° to the horizontal plane and the angle between the crushing surface of said concave liner and the crushing surface of said mantle liner at the outlet is 2° to 3° ;

whereby said first to third areas are sequentially arranged.

12. The cone crusher according to Claim 11, wherein the crushing surface of said concave liner is approximately 90° in said first area, 57° to 62° in said second area, and 47° to 52° in said third area, to the horizontal plane.